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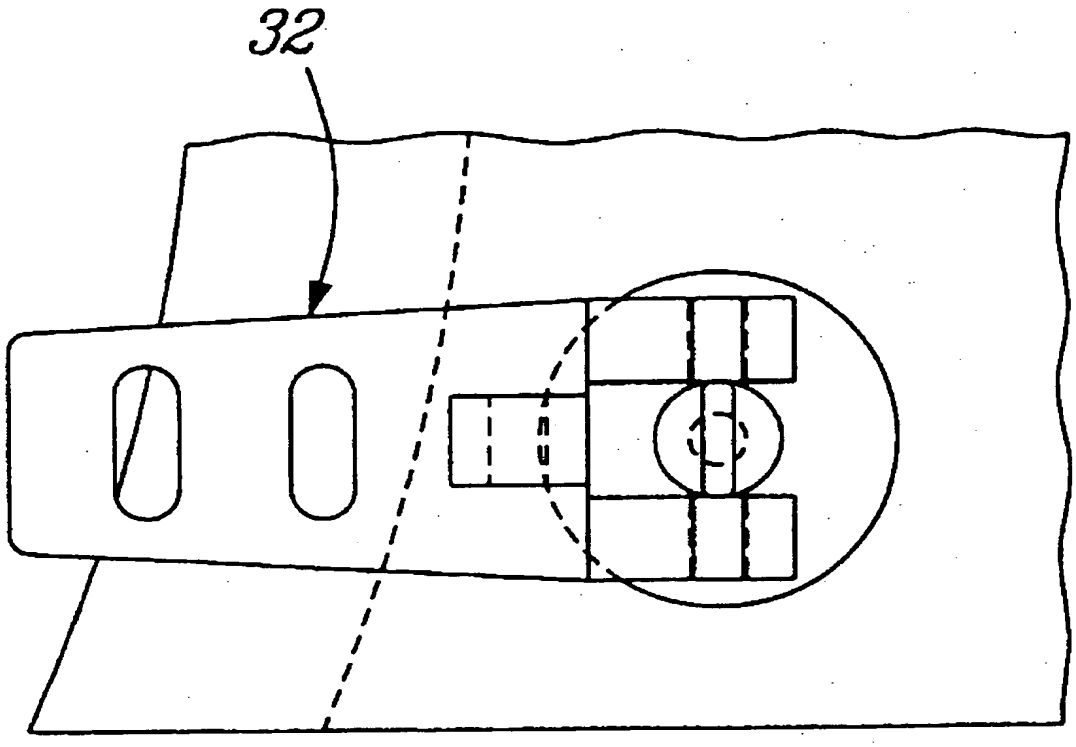
(54) Titre : ASSEMBLAGE DE FIXATION DE SIEGE DE TOILETTE
(54) Title: TOILET SEAT SECURING ASSEMBLY



(57) Abrégé/Abstract:
A toilet seat mounting assembly comprising an expandable element is described herein. A cam member is provided to cause the expansion of the expandable element when the seat portion of the toilet seat is positioned in an operating position.

ABSTRACT OF THE DISCLOSURE

A toilet seat mounting assembly comprising an expandable element is described herein. A cam member is provided to cause the expansion of the expandable element when the seat portion of the toilet seat is positioned in an operating position.

TITLE OF THE INVENTION

Toilet seat securing assembly

FIELD OF THE INVENTION

The present invention relates to toilet seats. More specifically, the present invention is concerned with a toilet seat securing assembly allowing easy removal of the toilet seat from the toilet bowl without the use of tools.

BACKGROUND OF THE INVENTION

Toilet seat securing assemblies are very well known in the art. Conventionally, they include a relatively long plastic screw that is used to interconnect a toilet seat hinge to the bowl through conventional mounting apertures provided in the bowl.

This conventional toilet securing method has the significant drawback of requiring tools for the installation and the removal of the toilet seat from the bowl.

To overcome this drawback, Bemis et al., in their United States patent No. 4,319,365 entitled *"No tool toilet seat hardware"*, describe an improvement on the conventional securing plastic screw. They propose an expansible anchor provided with an actuator that, when

actuated, cause an expansion of the anchor, thereby removably securing the toilet seat to the toilet bowl.

While being an improvement on conventional securing methods, Bemis' invention has the significant drawback that the user must manually operate the expansible anchor for removal, which may be unpleasant since the actuable portion of the anchor may become soiled.

OBJECTS OF THE INVENTION

An object of the present invention is therefore to provide an improved toilet seat securing assembly.

Other objects, advantages and features of the present invention will become more apparent upon reading of the following non-restrictive description of preferred embodiments thereof, given by way of example only with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the appended drawings:

Figure 1 is a sectional side elevational view of a toilet seat securing assembly according to a first embodiment of the present invention, shown in a partially inserted position;

Figure 2 is a sectional side elevational view of the toilet seat securing assembly of Figure 1, shown in a fully inserted, but unsecured, position;

Figure 3 is a sectional side elevational view of the toilet seat securing assembly of Figure 1, shown in a fully inserted and secured position;

Figure 4 is a top plan view of the toilet seat securing assembly of Figure 1 where the toilet seat is shown in dashed lines for clarity purposes;

Figure 5 is a sectional side elevational view of a toilet seat securing assembly according to a second embodiment of the present invention, shown in a partially inserted position;

Figure 6 is a sectional side elevational view of the toilet seat securing assembly of Figure 5, shown in a fully inserted, but unsecured, position;

Figure 7 is a sectional side elevational view of the toilet seat securing assembly of Figure 5, shown in a fully inserted, but unsecured, position during the set-up operation;

Figure 8 is a sectional side elevational view of the toilet seat securing assembly of Figure 5, shown in a fully inserted and secured

position; and

Figure 9 is a top plan view of the toilet seat securing assembly of Figure 5 where the toilet seat is shown in dashed lines for clarity purposes;

DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to Figures 1 to 4, a toilet seat securing assembly 10 according to a first embodiment of the present invention will be described.

The toilet seat securing assembly 10 is designed to interconnect a toilet seat assembly 12, including a toilet seat 14 and a cover 16, and a toilet bowl 18 provided with conventional securing apertures 20. The toilet seat securing assembly 10 includes a pair of two-part sleeve 22 (only one shown) designed to be removably inserted in the aperture 20, a pair of expanding anchors 24 (only one shown) each including a central post 26, an expansible element 28 mounted around the post 26, a washer 30 and a toilet seat hinge element 32 to which the toilet seat 14 and the cover 16 are mounted.

The two-part sleeve 22 includes a top part 34 and a bottom part 36. The top part 34 includes a flange 38 and an internally threaded portion 40, while the bottom part 36 includes a flange 42 and an externally threaded portion 44 configured and sized to receive the

internally threaded portion 40 of the top part 34. As can be seen from the figures, when the sleeve 22 is adequately mounted in the aperture 20, the flanges 38 and 42 maintain the sleeve 22 in position in the aperture 20. The central aperture 46 of the sleeve 20 is configured and sized to receive the expanding anchor 24 as will be described hereinbelow.

The central post 26 of the expanding anchor 24 includes a distal end provided with a flange 48 and a proximate end including a transversal pivot pin 50 integral with the central post 26. The pivot pin thereby defines a generally T-shape. The expanding portion 28 and the washer 30 are provided between the flange 48 and the pivot pin 50.

As can be clearly seen in the figures, the toilet seat hinge element 32 includes a channel 52 configured to receive the pivot pin 50. Furthermore, the proximate end of the toilet seat hinge element 32 includes a curved portion 54, thereby defining a cam member, the purpose of which will be described hereinbelow.

Turning briefly to Figure 4 of the appended drawings, the toilet seat hinge element 32 includes elongated apertures 56 and 58 allowing the toilet seat mounting assembly 10 to be used to mount a toilet seat 12 to different spacing bowl apertures.

Figures 1 to 3 illustrate the installation of the toilet seat 12 to the toilet bowl 18 via the toilet seat securing assembly 10 of the present invention. Figure 1 illustrates the beginning of the insertion of the expansible anchor 24 in the sleeve 22 (see arrow 60).

In Figure 2, the expansible anchor 24 is fully inserted in the sleeve 22. It is to be noted that the undersurface of the washer 30 is advantageously provided with a shoulder allowing the washer 30 to tightly contact the surface of the bowl 18.

Figure 3, shows the toilet seat mounting assembly 12 in its securing position. This position is obtained when the seat 14 is moved from its unsecuring position shown in Figure 2 (see arrow 62). This movement forces the rotation of the toilet seat hinge element 32 about the pivot pin 50. The configuration and size of the hinge element 32 is such that the pivotal movement about pivot pin 50 causes the upward movement of the central post 26 (see arrow 64). This upward movement longitudinally compresses the expandable element 28, thereby increasing its thickness, which mounts the toilet seat 12 to the bowl 18.

A major advantage of the toilet seat mounting assembly of the present invention is that, to remove the seat from the bowl, for example for cleaning purposes, the user simply has to place the seat in a generally vertical position (shown in Figures 1 and 2) and pull the seat upwardly.

Turning now to Figures 5 to 9 of the appended drawings, a toilet seat mounting assembly 100 according to a second embodiment of the present invention will be described.

Since the toilet seat mounting assembly 100 is very similar to the toilet seat assembly 10 of Figures 1 to 4, and for concision

purposes, only the differences between these two embodiments of the present invention will be described hereinbelow.

The major difference between the two embodiments is the fact that the toilet seat mounting assembly 100 does not use a sleeve in the aperture 20 of the toilet bowl to thereby decrease the number of parts forming the assembly.

To ensure that the expansion element 28 expands sufficiently to adequately maintain the toilet seat 12 to the bowl 18, the central post 102 includes an externally threaded portion 104 onto which the flange 106, including an internal thread (not shown), may be secured. As can be better seen in Figure 8, the top portion of the central post 102 includes a manually actuable portion 108 allowing the user to rotate the post 102 to pre-compress the expandable element 28.

It is to be noted that this pre-compression step is done only the first time the toilet seat is mounted to the bowl. Once this installation step is completed, the installation and/or removal of the toilet seat 12 from the bowl 18 is as described hereinabove.

As will be readily apparent to one skilled in the art, the various elements of the toilet seat securing assembly, apart from the expansible element 28, are advantageously made of plastic material.

It is to be noted that while the toilet seat hinge element has been shown herein as being apart from the toilet seat 14 and the

cover 16, this element could of course be an integral part of these toilet seat parts.

Although the present invention has been described hereinabove by way of preferred embodiments thereof, it can be modified, without departing from the spirit and nature of the subject invention as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A toilet seat mounting assembly comprising:

a central post;

an expandable element mounted around said central post; and

means for selectively expanding said expandable element to cause a friction between the expandable element and an aperture of a toilet bowl.

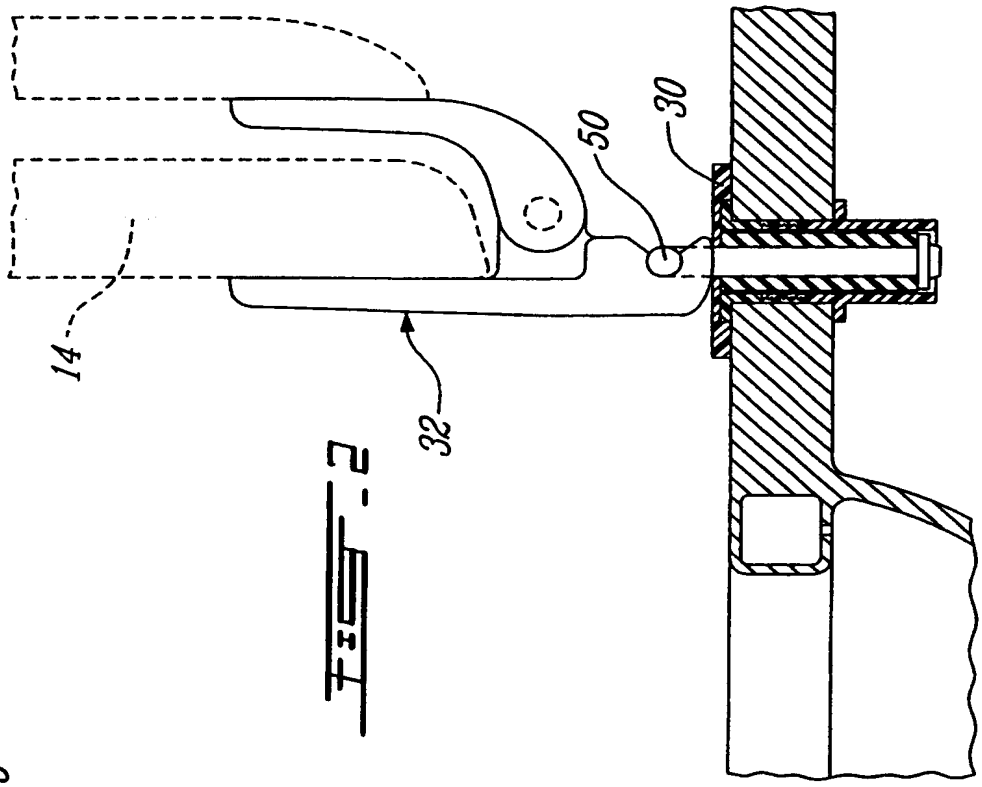

30
50
14
32

Fig. 2

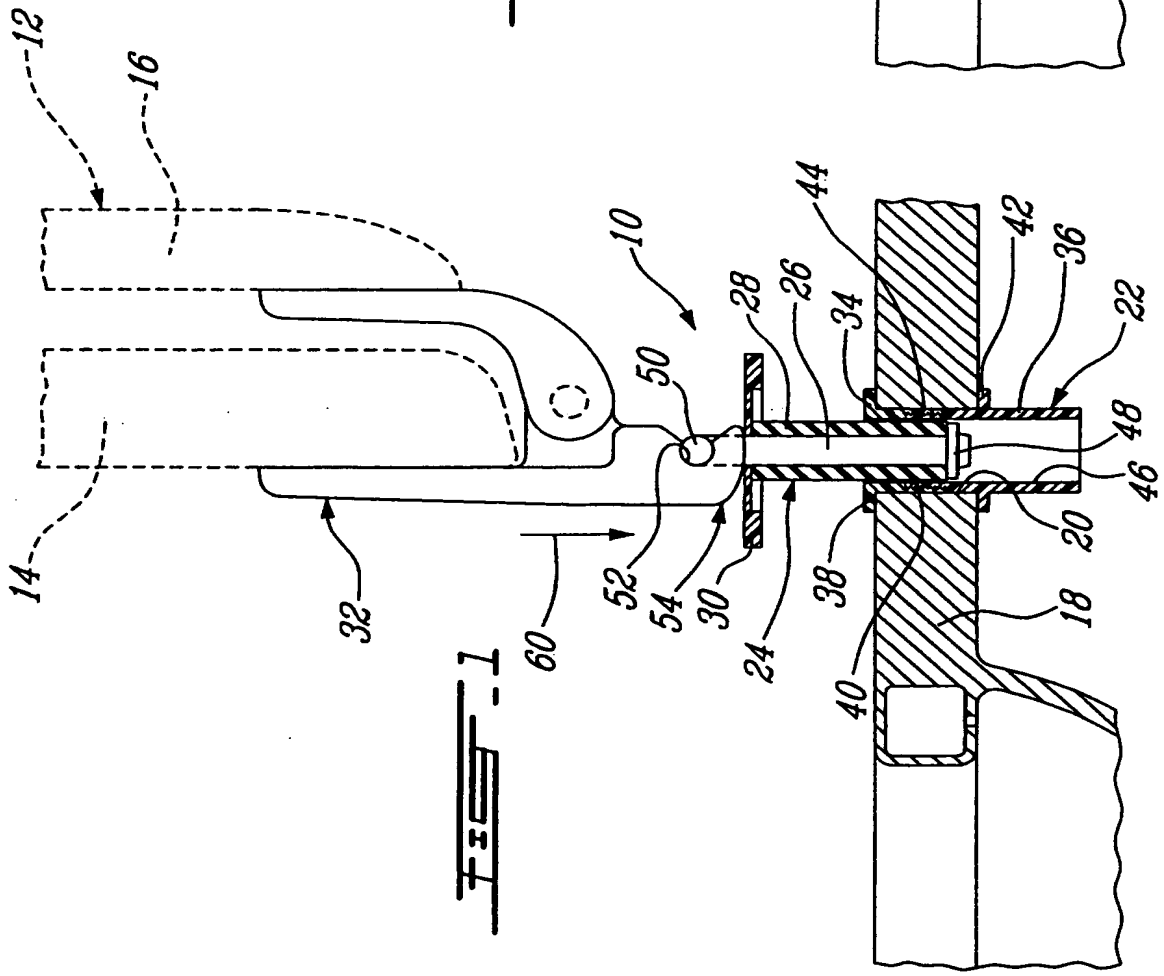

12
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Fig. 1

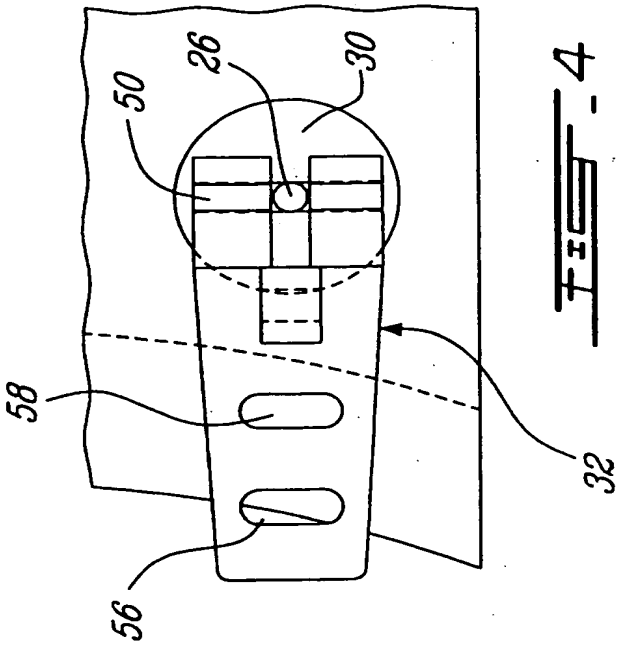

Fig - 4

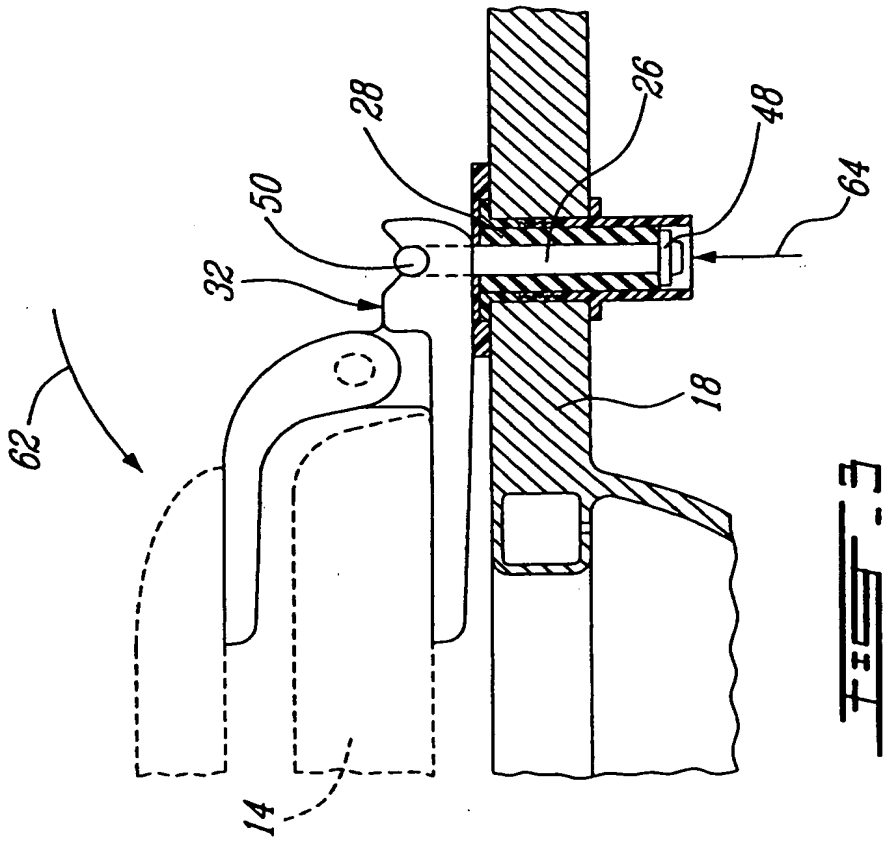

Fig - 3

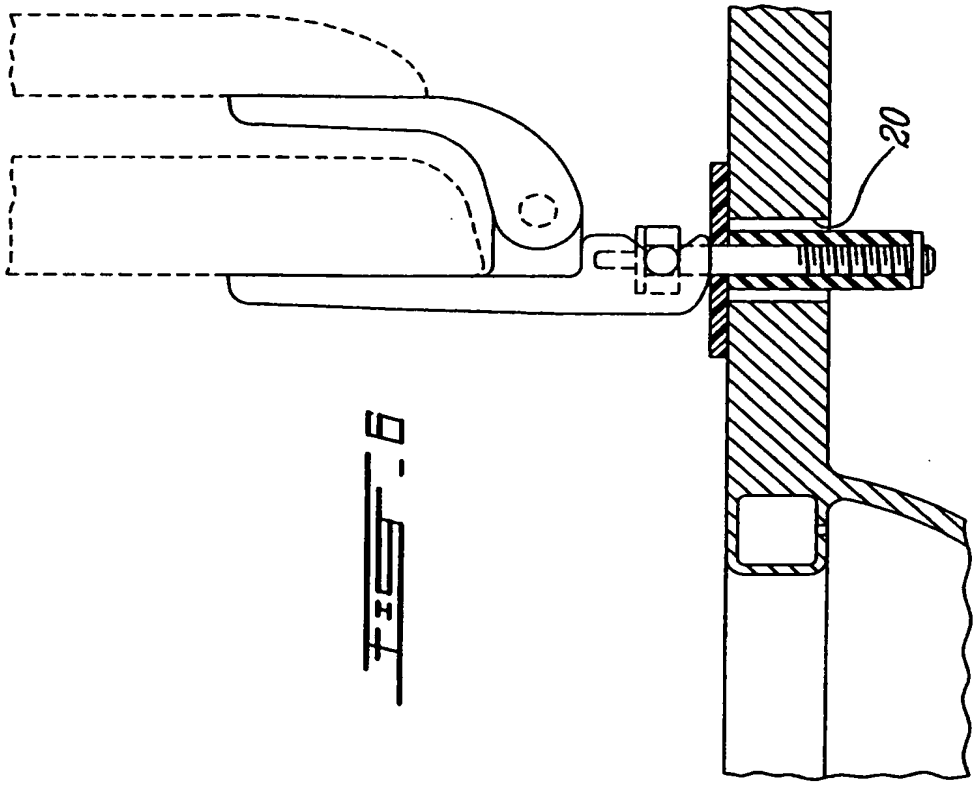

Fig. 6

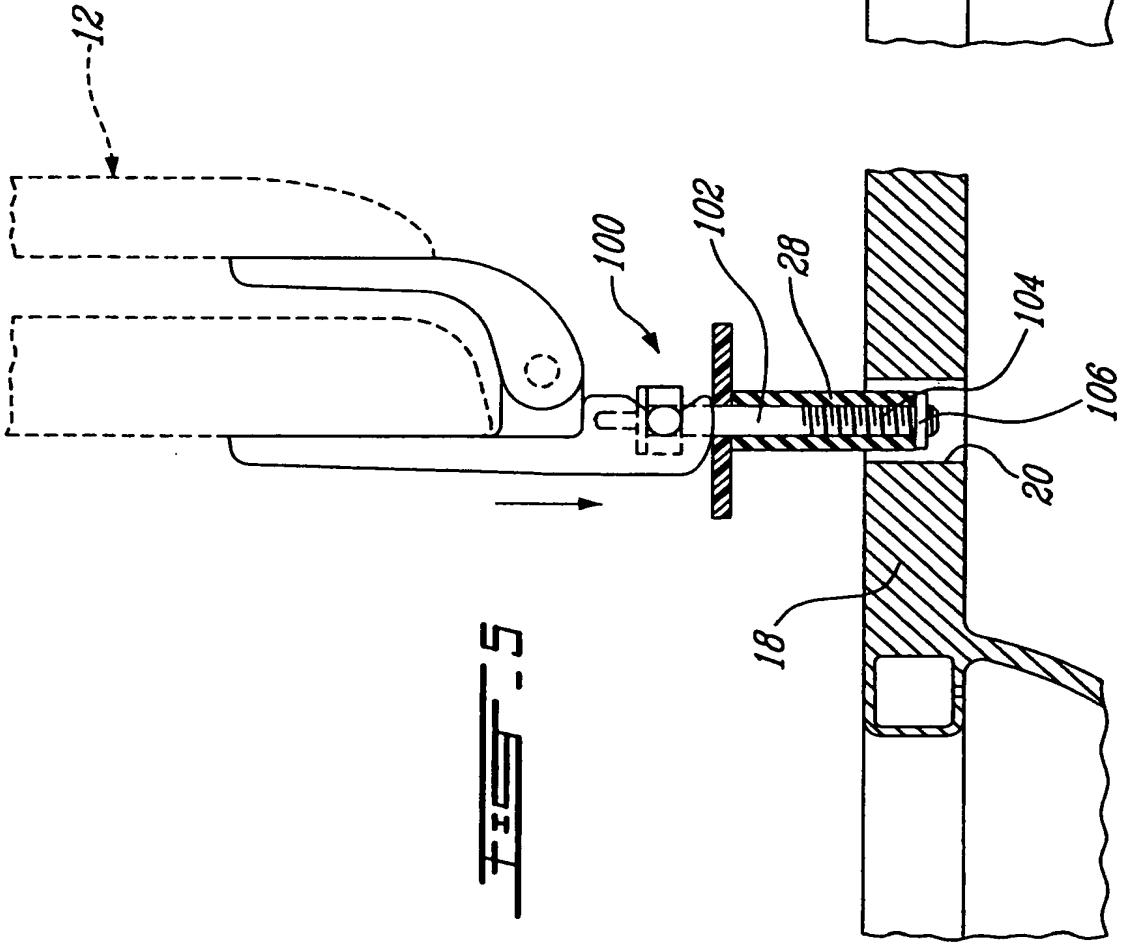

Fig. 5

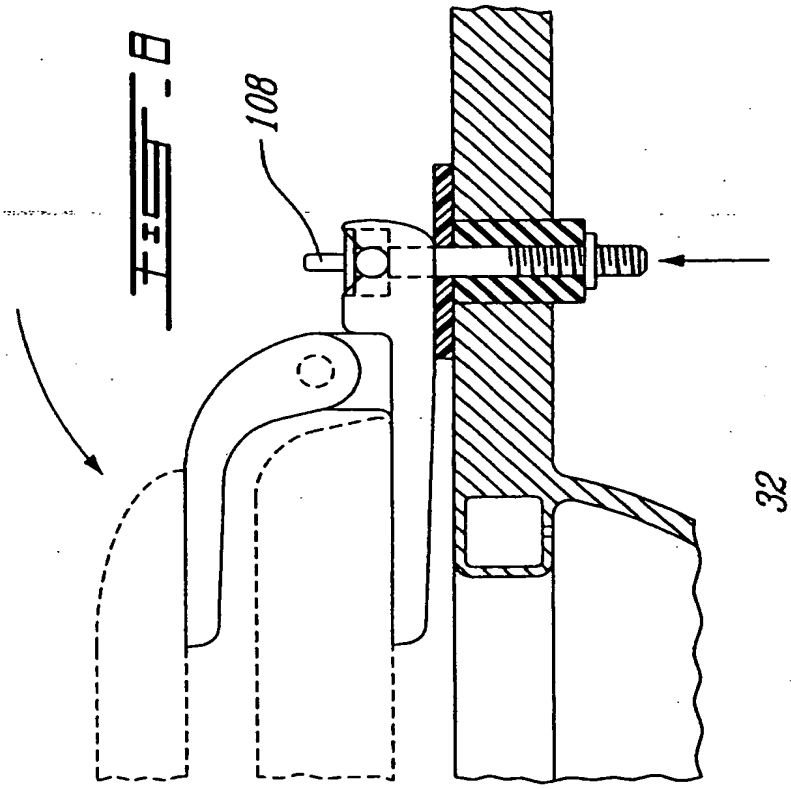

Fig. 8

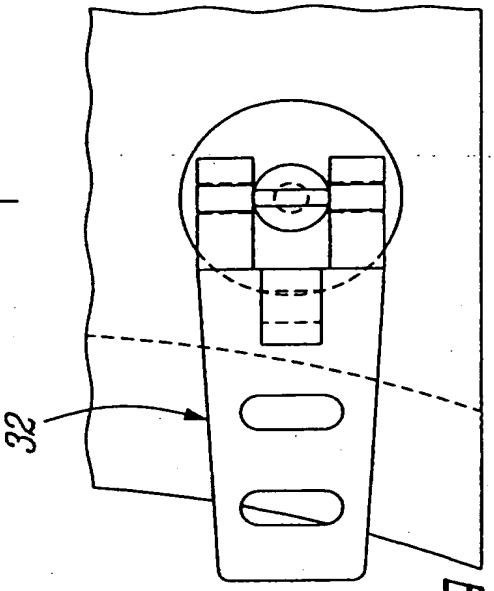

Fig. 9

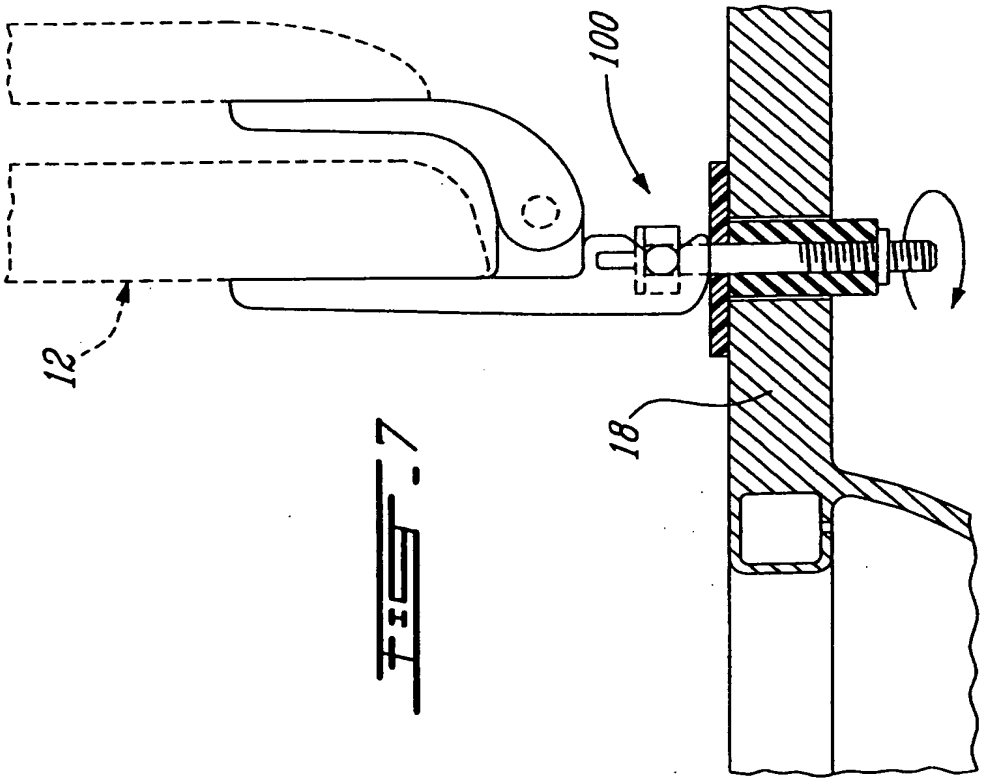

Fig. 7

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